

WHAT IS CLAIMED IS:

1. A method for providing Ethernet VLAN capacity requirement estimation, said method comprising:

receiving a VLAN including VLAN access ports, VLAN switches and VLAN trunks, wherein said VLAN access ports include VLAN bandwidth requirements and VLAN class of service and said VLAN trunks include VLAN capacity counters and VLAN threshold parameters;

receiving a target access port, said target access port including a target class of service and a target bandwidth requirement from a requestor;

determining a target trunk and target switch corresponding to said target access port, wherein said target trunk corresponds to one of said VLAN trunks and said target switch corresponds to one of said VLAN switches;

calculating a bandwidth contribution of said target access port to said VLAN, said calculating responsive to said VLAN trunks, said VLAN switches, said VLAN access ports, and said target access port; and

transmitting said bandwidth contribution to said requestor.

2. The method of claim 1 further comprising:

adding said bandwidth contribution to a target capacity counter corresponding to said target trunk resulting in a target capacity;

transmitting an alert in response to said target capacity exceeding a target threshold corresponding to said target trunk.

3. The method of claim 2 wherein said target threshold is an alarm threshold.

4. The method of claim 2 wherein said target threshold is a cut-off threshold.

5. The method of claim 2 further comprising updating said target capacity counter with said target capacity and adding said target access port to said VLAN in response to said target capacity not exceeding said target threshold.

6. The method of claim 2 wherein said target threshold varies based on said target class of service.
7. The method of claim 2 wherein said target capacity varies based on said target class of service.
8. The method of claim 1 wherein said target class of service is best effort.
9. The method of claim 1 wherein said target class of service is committed bandwidth.
10. The method of claim 1 wherein said target class of service is priority plus.
11. The method of claim 1 wherein said calculating a bandwidth contribution of said target access port to said VLAN includes:
  - splitting said VLAN into two portions based on the location of said VLAN switches relative to said target trunk, wherein one portion includes said target access port and is an access port side and the other portion is a non-access port side;
  - calculating a current access port side bandwidth requirement responsive to said VLAN;
  - calculating a potential access port side bandwidth requirement responsive to said VLAN and to said target access port;
  - calculating a current non-access port bandwidth requirement responsive to said VLAN; and
  - determining said bandwidth contribution of said target access port by subtracting the minimum of said current access port side bandwidth requirement and said current non-access port bandwidth requirement from the minimum of said potential access port side bandwidth requirement and said current non-access port bandwidth requirement.

12. A method for providing Ethernet VLAN capacity requirement estimation, said method comprising:

receiving a VLAN;

auditing said VLAN including:

    checking said VLAN for structural integrity;

    computing a capacity counter value associated with said VLAN;

    computing a hub value associated with said VLAN; and

    checking capacity on a trunk associated with said VLAN; and

transmitting a result responsive to said auditing.

13. The method of claim 12 wherein said checking said VLAN for structural integrity includes verifying that said VLAN is complete.

14. The method of claim 12 wherein said checking said VLAN for structural integrity includes verifying that said VLAN is coherent.

15. The method of claim 12 wherein said checking said VLAN for structural integrity includes verifying a tree structure associated with said VLAN.

16. A system for providing Ethernet VLAN capacity requirement estimation, the system comprising:

a network;

a storage device in communication with said network, wherein said storage device includes a VLAN database;  
a user system in communication with said network; and  
a host system in communication with said network, said host system including application software to implement a method comprising:

receiving a VLAN stored in said VLAN databases, said VLAN including VLAN access ports, VLAN switches and VLAN trunks, wherein said VLAN access ports include VLAN bandwidth requirements and VLAN class of service and said VLAN trunks include VLAN capacity counters and VLAN threshold parameters;

receiving a target access port via said network, said target access port including a target class of service and a target bandwidth requirement from a requestor using said user system;

determining a target trunk and target switch corresponding to said target access port, wherein said target trunk corresponds to one of said VLAN trunks and said target switch corresponds to one of said VLAN switches;

calculating a bandwidth contribution of said target access port to said VLAN, said calculating responsive to said VLAN trunks, said VLAN switches, said VLAN access ports, and said target access port; and

transmitting said bandwidth contribution via said network to said requestor.

17. The system of claim 16 wherein said network is the Internet.

18. The system of claim 16 wherein said network is an intranet.

19. The system of claim 16 wherein said VLAN database is a relational database.

20. A computer program product for providing Ethernet VLAN capacity requirement estimation, the computer program product comprising:
  - a storage medium readable by a processing circuit and storing instructions for execution by the processing circuit for facilitating a method comprising:
    - receiving a VLAN including VLAN access ports, VLAN switches and VLAN trunks, wherein said VLAN access ports include VLAN bandwidth requirements and VLAN class of service and said VLAN trunks include VLAN capacity counters and VLAN threshold parameters;
    - receiving a target access port, said target access port including a target class of service and a target bandwidth requirement from a requestor;
    - determining a target trunk and target switch corresponding to said target access port, wherein said target trunk corresponds to one of said VLAN trunks and said target switch corresponds to one of said VLAN switches;
    - calculating a bandwidth contribution of said target access port to said VLAN, said calculating responsive to said VLAN trunks, said VLAN switches, said VLAN access ports, and said target access port; and
    - transmitting said bandwidth contribution to said requestor.